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A new subspecies of *Delias benasu* (Lepidoptera, Pieridae) from Mt Tambusisi, northeastern Sulawesi, Indonesia*

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Abstract A new subspecies of *Delias benasu* is described from Mt Tambusisi, northeastern Sulawesi, Indonesia. This subspecies is distinguished from the nominotypical subsp. *benasu* from central Sulawesi by the bluish upperside ground colour, much broadened submarginal spots on hindwing, and distinctly yellowish subapical area of forewing underside in the males.

Key words Pieridae, *Delias benasu*, new subspecies, male genitalia, Mt Tambusisi, Sulawesi.

Introduction

Delias benasu Martin, 1912 is endemic to central Sulawesi (Yata, 1981) and has very characteristic marking for the genus *Delias*. Talbot (1937) considered *D. benasu* as a member of the *belladonna* group, but Morishita (1981) treated it as the *pasithoe* group based on the male genitalia and androconia.

Although this species has previously been known only from mountains of central Sulawesi (*ca* 1,000–1,500 m alt.), we found distinct and diagnostic characters in a new population of *D. benasu* occurring in Mt Tambusisi, northeastern Sulawesi, Indonesia, and describe it as a new subspecies. Mt Tambusisi is somewhat isolated from the mountains of central Sulawesi. This species has not been divided into subspecies so far.

Abbreviations used in the text for the type depositories are as follows:

BLKU: Biosystematics Laboratory, Faculty of Social and Cultural Studies, Kyushu University, Fukuoka.
NHM: The Natural History Museum, London.
MZB: Museum Zoologi Bogor, Indonesia.

Description

Delias benasu arimai Yamauchi, Yata et Peggie, **ssp. nov.** (Figs 1–6)

Male (Figs 1–2). Upperside: Ground colour tinged with more bluish black; forewing subapical area yellowish; series of submarginal spots distinct and much broadened on hindwing. Underside: forewing subapical area distinctly yellowish; series of submarginal spots broad and distinct on hindwing.

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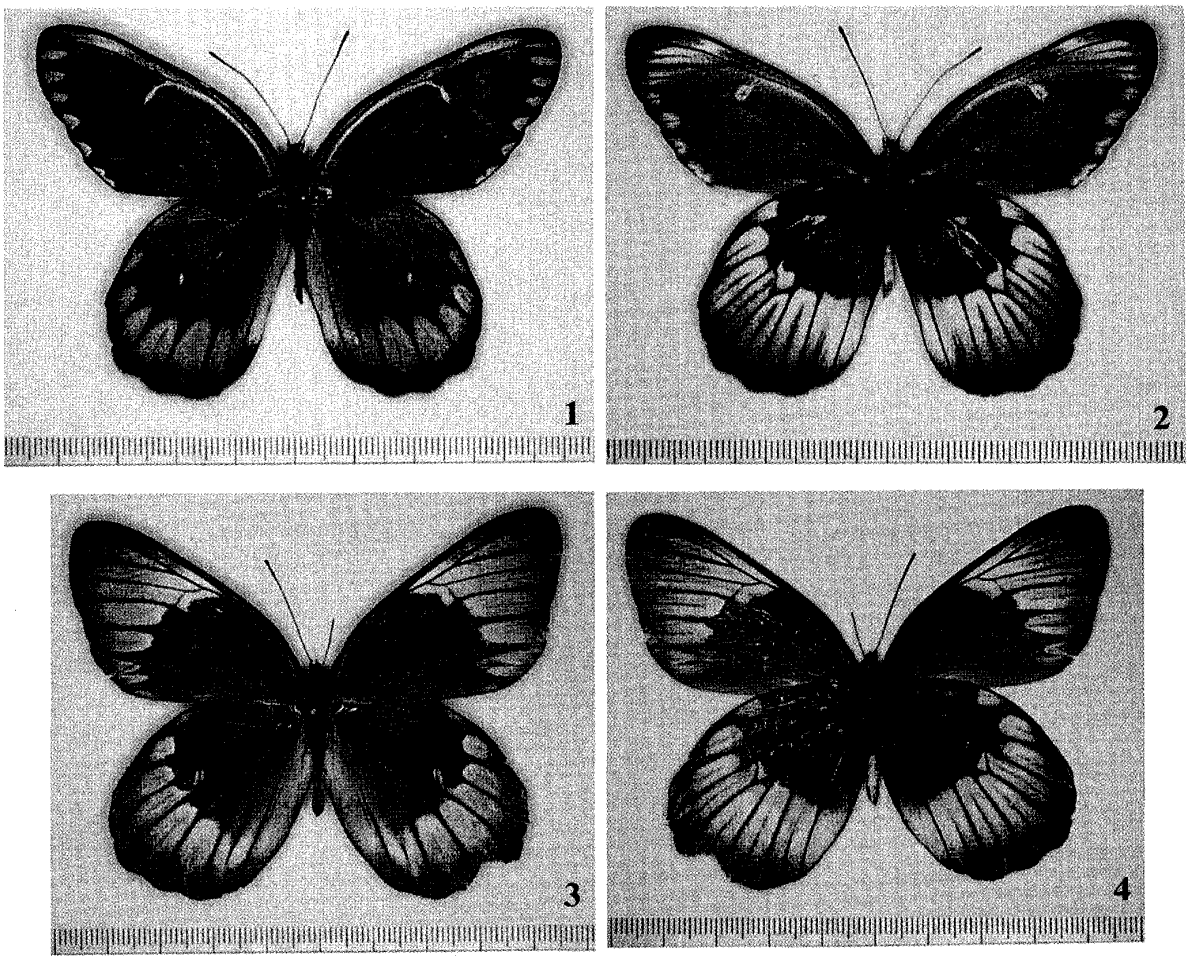

Figs 1–4. *Delias benasu arimai* Yamauchi, Yata et Peggie, ssp. n. from Mt Tambusisi. 1. ♂, holotype. 2. *Ditto*, underside. 3. ♀, paratype. 4. *Ditto*, underside.

Female (Figs 3–4). Upperside: Ground colour tinged with dark brown; forewing white border broad; series of submarginal spots cream and much broadened on hindwing. Underside: forewing white border broad; series of submarginal spots lemon-yellow, broad and distinct on hindwing.

Forewing length. Male, 45.5 mm; female, 48.5–52.0 mm.

Male genitalia (Figs 5–6). Although *Delias benasu* shows a marked individual variation, especially for uncus and phallus, this subspecies is within the range of variation.

Type locality. Mt Tambusisi, northeastern Sulawesi, Indonesia.

Distribution. This subspecies is restricted to Mt Tambusisi (2,422 m alt.), northeastern Sulawesi, Indonesia in its distributional range.

Holotype. ♂, Indonesia, northeastern Sulawesi, Mt Tambusisi, IX. 1996, H. Arima leg. [BLKU]. Paratypes. 2 ♀, same data as holotype [NHM] [MZB].

Remarks. This new subspecies is distinguishable from the nominotypical subspecies *benasu* by the upperside ground colour tinged with more bluish, subapical area of forewing underside distinctly yellowish in the males, white border broad on upperside and underside forewing in the females, and series of submarginal spots broad and distinct on underside hindwing in

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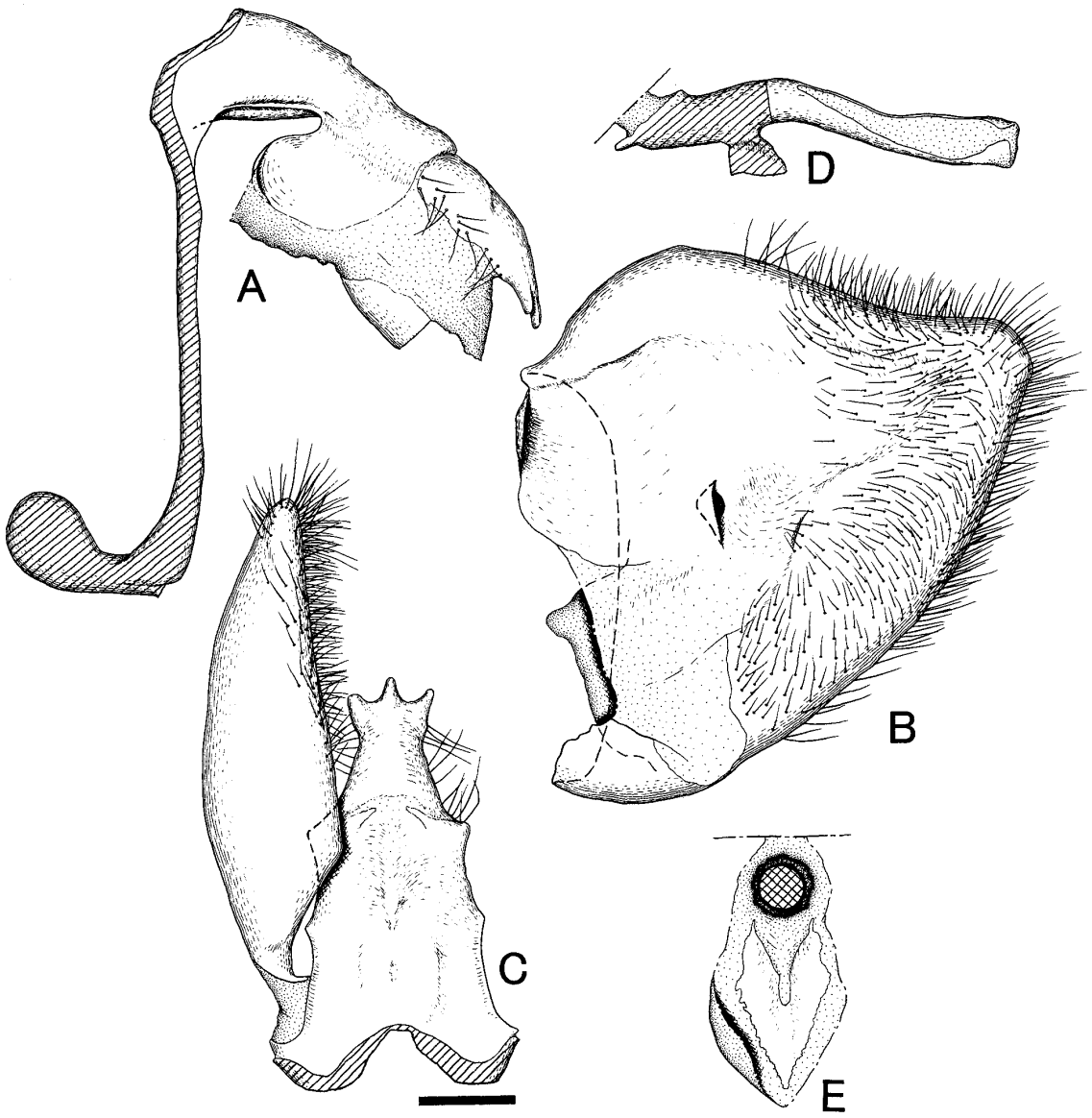

Fig. 5. Male genitalia of *Delias benasu arimai* Yamauchi, Yata et Peggie, ssp. n. from Java. A: ring (lateral). B: valva (inner aspect of right-side). C: dorsum and valva (dorsal). D: phallus (lateral). E: juxta (posterior).

males and females.

Etymology. This subspecies is named in honor of Dr Hayami Arima who collected this new taxon and offered us the most important series of materials for this study.

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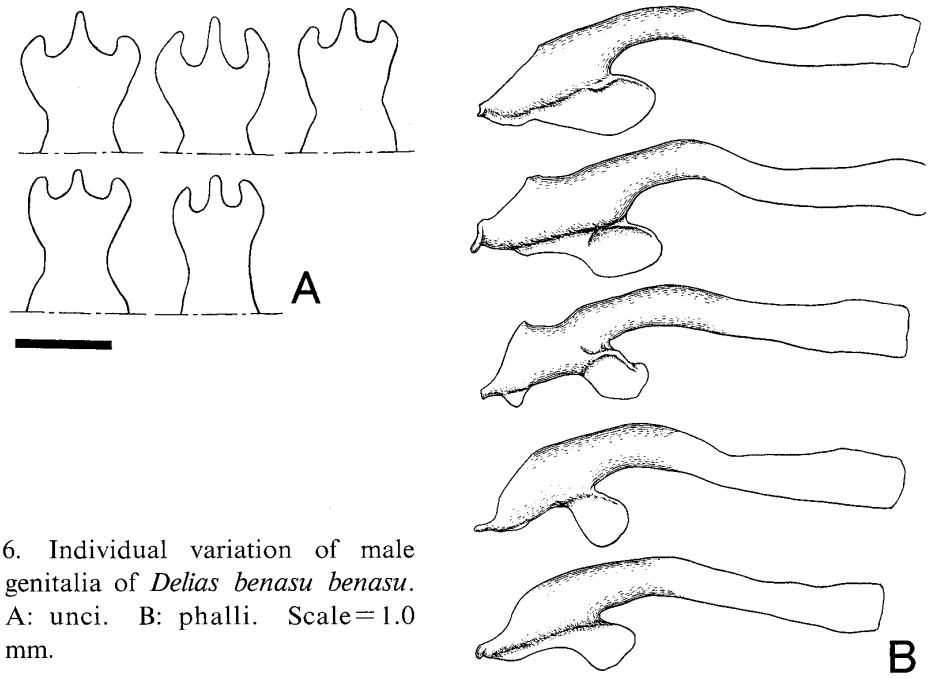

Fig. 6. Individual variation of male genitalia of *Delias benasu benasu*. A: unci. B: phalli. Scale=1.0 mm.

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摘　　要

インドネシア，スラウェシ島，Tambusisi に産する *Delias benasu* Martin の 1 新亜種 (山内健生・矢田　脩・Djunijanti Peggie)

Delias benasu arimai Yamauchi, Yata et Peggie, ssp. nov.

Delias benasu Martin の 1 新亜種をインドネシアのスラウェシ島北東部，Tambusisi 山から記載した．*Delias benasu* は *Delias* 属の中でも非常に特徴的な斑紋をもつ種であり，Talbot (1937) によって *Delias* 属 *belladonna* group に含められていたが，森下 (1981) による雄交尾器と発香鱗の調査の結果 *pasithoe* groupに所属を移された．本種はスラウェシ島中央部の山地帯 (標高約1,000–1,500 m) からのみ知られていたが，今回新たに記載した亜種はスラウェシ島南東部のTambusisi山 (標高2,422 m) から発見された．Tambusisi 山は原名亜種が分布するスラウェシ島中央部の山地帯からやや孤立している．

本亜種は，雄の翅表がいっそう青みを帯びる，表面後翅外半の斑列が幅広い，裏面前翅翅頂付近に明瞭な黄色斑が現れる，雌前翅の帯が白い，雌雄とも裏面後翅外半の斑列が明瞭で幅広い，などの特徴により原名亜種から識別可能である．なお，本種にはこれまで他に亜種は認められていなかった．

Delias benasu は雄交尾器形態 (特にウンクスとファルス) の変異の幅が大きいようであるが，本亜種の雄交尾器も種内変異の幅に含まれた．

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